CLAIM AMENDMENTS

This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Canceled)

2. (Currently amended) The ~~apparatus~~ emitter location systems according to claim **[[1]]** 18, wherein the detected times of arrival are corrected for discrepancies, ~~that are~~ caused by atmospheric refraction, by minimizing said residual path length.

3. (Canceled)

4. (Currently amended) The ~~apparatus~~ emitter location systems according to claim **[[3]]** 2, wherein said ~~determining means is arranged to: a) measure electromagnetic wave arrival time differences between pairs of said receivers, b) obtain an estimate of emitter position, c) for each receiver, using said estimate, obtain a ground range from said emitter to that receiver, d) use said ground range, a receiver height, and an assumed refractive profile in a selected ray-tracing integral equation to predict actual path length, e) obtain a path length difference between a predicted actual path length and a straight line path length of the estimated emitter position to form a correction to each of said electromagnetic wave arrival times, and f)~~ processor repeatedly ~~obtain said~~

~~estimate of~~ obtains the ground range from the emitter ~~position, obtain said ground range, predict said actual path length, and obtain said path length difference until~~ to repeatedly predict said bent path length. ~~difference converges to a certain value.~~

5. (Currently amended) The ~~apparatus~~ emitter location systems according to claim **[[1]]** 18, wherein said ~~determining means is arranged to determine~~ processor determines a predicted actual path length R between the emitter and at least one of said ~~platforms~~ systems from a ray tracing equation

$$R = \int_{h_0}^{h_1} \frac{n(h)}{\sqrt{1 - \left[\frac{n_0 \cos(\theta_0)}{n(h)\left[1 + \frac{h}{re}\right]^2} \right]}} .dh ,$$

where $n(h)$ describes the atmospheric refractive profile as a function of height, n_0 is the refractive index at the earth surface, θ_0 is the take-off angle of the ray at the emitter, h_0 and h_1 are the start and end heights of the path, and re is the earth radius.

6. (Currently amended) The ~~apparatus~~ emitter location systems according to claim 5, ~~including~~ further comprising a Kalman filter for improving correction of said detected times.

7-17. (Canceled)

18. (New) A plurality of emitter location systems for locating an emitter of electromagnetic waves, comprising:

radar antennas,

receivers, each receiver detecting a time of arrival of said electromagnetic waves at said receiver,

controllers,

transceivers, and

a processor for minimizing a residual path length due to differences in path bending from electromagnetic wave time differences of arrival for at least three pairs of emitter location systems by assuming straight-line paths and, for each emitter location system, using an algorithm to obtain a three dimensional estimate of emitter position, obtaining a ground range from the emitter to a respective receiver, and using the ground range, emitter location system height, and an assumed refractive profile to predict a bent path length.